Rotational Grazing on Rangelands: Synthesis and Recommendations

By Joel Brown and Mort Kothmann

The role of rotational grazing as a management tool on rangelands continues to be controversial. It is unlikely that the papers in this special issue have convinced anyone advocating an extreme pro or con position to change his or her mind. Our intention with this special issue was not to resolve the controversy in one way or another (not that we could!). We did not intend to refute (or even rebut) the findings of the recent paper by Briske et al. Developing an argument against their findings would require either 1) examining the same literature and coming to a different conclusion or 2) finding peer-reviewed scientific literature that they had overlooked. Although possible, it is not probable that either of these approaches would yield much in the way of useful results.

Likewise, we did not intend to merely confirm the findings of Briske et al. by inviting a new set of authors to re-interpret the same literature for a different audience. The resolution of this issue requires a much more critical and inquisitive (as well as persistent) approach. Even if there is a lack of experimental evidence supporting the widespread application of rotational grazing as a means to enhance plant or animal production, quite a lot of anecdotal evidence and some eloquent arguments provide a substantial amount of support for the promotion and adoption of some form of rotational grazing to achieve other rangeland management objectives. Thus, our challenge is to figure out how to develop testable hypotheses, perform critical experiments, and transfer the relevant information among a variety of decision makers.

First and foremost among hypotheses that need to be tested is the use of grazing systems for the improved management of livestock. While there remains little evidence that grazing-management decisions beyond proper stocking rate, season of use, distribution, and kind and/or class of animal can substantially affect plant or animal production, there is abundant evidence that rotational grazing in some form can dramatically improve the management and profitability of livestock operations (see the article in this issue by Brunson and Burritt). The challenge here is to avoid the temptation to simply compare already accepted attributes of existing systems (e.g., forage production, species composition, and animal gain) with a host of unknown externalities (e.g., management history, soils, climate, managerial expertise, and inputs) and arrive at the questionable conclusion that one approach is “better” than another (see the article in this issue by Svejcar and Havstad). Added to the relatively straightforward livestock operation questions are the larger issues of financial performance in the multi-year time frame that encompasses wide swings in markets and weather and the integration of these attributes in a decision-support framework (see the article in this issue by Kothmann et al.).

Another very important set of hypotheses that will require rigorous testing is the use of rotational grazing (and grazing management in general) to achieve conservation objectives (see the article in this issue by Budd and Thorpe). Although the relationships among livestock grazing (e.g., stocking rate, season of use, etc.), community-scale plant and soil attributes (e.g., structure, species composition, infiltration, etc.), and fine-scale conservation attributes (e.g., habitat, erosion, runoff, etc.) are relatively well known and quantified, the real environmental issues of the immediate future revolve around how we can organize multi-landowner, multi-site activities to achieve meaningful and measureable conservation objectives at landscape and regional scales (see the article in this issue by Krausmann et al.).

Rangeland researchers, advisors, and practitioners can all be justifiably proud of the progress that we have made in defining, transferring, and implementing the basic principles of good management at the paddock and ranch scale. Our new challenge is to systematically organize these and emerging principles of management in order to simultaneously encompass additional (and similarly important) objectives. Clearly, grazing management and rotational grazing are very complex activities, both in terms of their implementation and in terms of their analysis (see the article in this issue by Kothmann). The experimental designs, metrics, and analytical techniques used in the past are unlikely to offer much insight into these more complex questions. With an